DOCUMENT RESUME

ED 089 420 EA 006 007

AUTHOR Choi, Jae W.; Lyons, Paul R.
TITLE Ad Hoc Planning Management (A Practical Guide for Administrators and Managers).
INSTITUTION Frostburg State Coll., Md.
PUB DATE May 74
NOTE 47p.

EDRS PRICE MF-$0.75 HC-$1.85 PLUS POSTAGE
DESCRIPTORS Administrator Guides; Group Behavior; Group Dynamics; Group Relations; Higher Education; Leadership Training; *Management Development; *Management Systems; Models; Objectives; Organization; *Planning; Problem Solving; *Task Analysis; *Task Performance
IDENTIFIERS Group Consensus; Organizational Environment; Planning Management

ABSTRACT

The model for planning groups presented in this paper is an attempt to provide varying levels of organizational leaders with a device to increase planning efficiency and effectiveness. The planning process is highlighted as it might be viewed through the eyes of the individual responsible for completion of the planning task. The major emphasis is on pointing out those aspects of individual and group behaviors which may affect the planning effort in a group setting. The prospective planning manager is provided with guidelines as to how he might develop a sensitivity to characteristics of individual and group behaviors, in order to optimize individual as well as group contributions to the planning activity. An extensive reference listing is included. (Page 29 may reproduce poorly.) (Author/MLP)

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AD HOC PLANNING MANAGEMENT

(A Practical Guide for Administrators and Managers)

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EA 006 007

Frostburg, Maryland

May 1974

PREFACE

In many of today's organizations we often find that planning activities, formal as well as informal, take place in a rather random, unsystematic manner. Increasing demand for acccuntability by the public and/or clientele has been forcing many service-oriented organizational leaders to take a more careful look at their areas of responsibility. Assessment and planning activities are deemed necessary in order to optimize the goal achievement potential of the organization.

The model for ad hoc (or temporary) planning groups presented herein is an attempt to provide varying levels of organizational leaders with a device which is believed to increase planning efficiency and effectiveness. This model is developed in a straight-forward, process-oriented approach to planning. The process incorporated into this model can be easily implemented with or without individuals who are highly experienced or formally trained in planning. The model, we believe, would enhance individual as well as organizational competency through its application. Since the model is basically process-oriented, it would seem to be useful for administrators and managers of such organizations as colleges and universities, community colleges, public schools, hospitals, local and state governments, non-profit organizations, or any sub-units of these organizations.

The arduous task of preparing the manuscript through its various drafts fell to Mrs. Wilma Summerfield. Her patience and attention to detail were invaluable.

J.W. Choi
P.R. Lyons

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INTRODUCTION

There is a considerable body of research, commentary, and documented experiences which deals, in some detail, with group planning processes including activities, attitudes, tools, techniques, and designs (Casasco, 1970). Much of this material treats planning as a relatively mechanistic as well as impersonal activity. Planning, however, if carried out in a group setting, is not an impersonal activity. Neglecting this fact could only result in insufficient assessment of the planning task.

The purpose of this paper is to highlight the planning process as it might be viewed through the eyes of the individual (planning manager) charged with responsibility for the completion of the planning task. The major emphasis will be to point out those aspects of individual and group behaviors which may affect the planning effort in a group setting. The emphasis in this paper is referred to as ad hoc planning management. In essence, the prospective planning manager is provided with guidelines as to how he might develop a sensitivity to characteristics of individual and group behaviors, in order to optimize individual as well as group contributions to the planning activity.

Regardless of the intricacies, level of sophistication, or detail of decision-science methods and tools used in the planning activity, the planning manager must have some basic knowledge and understanding of those behavioral characteristics of individuals and groups in relation to phenomena that are likely to affect group decision-making as well as the general functioning of the group.

The planning model dealt with in this paper is not an all-encompassing and comprehensive one. It is, rather, a relatively straight-forward and uncomplicated process-oriented one. The model is tied to a fundamental set of assumptions which tend to be derived from experience, particularly in post-secondary educational institutions. They are as follows:

1. The model is intended to optimize the effectiveness of planning

activities in an ad hoc setting or of a temporary nature;

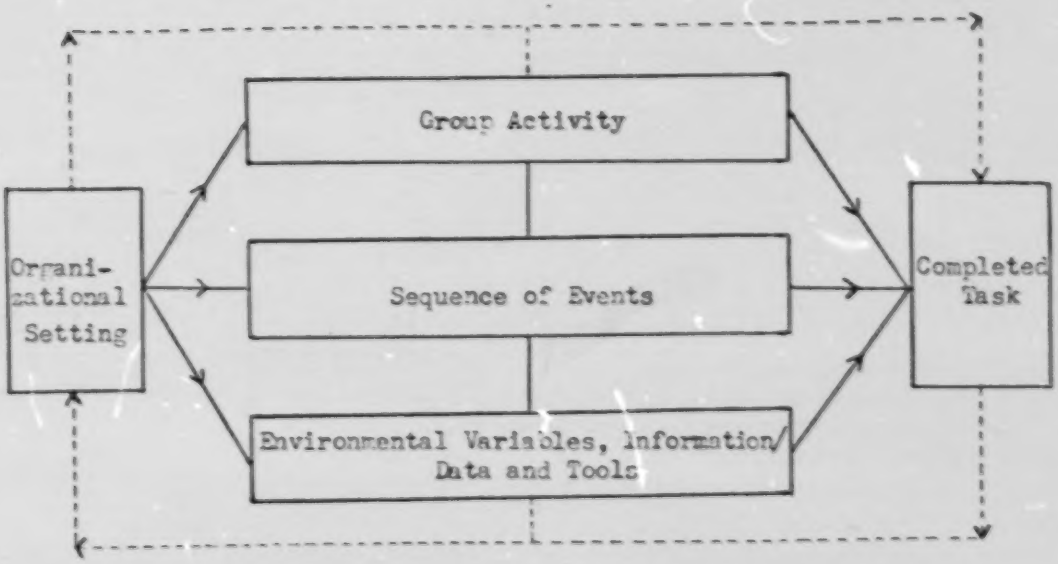
2. The model is primarily aimed at serving as a guide to the planning manager who is not a planning expert; and

3. The members in the group have had little or no planning experiences.

The planning model perhaps can be best defined and described vis-a-vis figures 1, 2, and 3. Figure 1 depicts the major dimensions of the model. The entire planning process consists of a series of sequential events, each involving certain types of information and data, and the like to be manipulated, analyzed, and synthesized by the planning group. An event is a tentative fluid entity given dimension by group activity. That is, the planning process consists of a series of consecutive and intermediate events loosely strung together. Each event serves to develop forthcoming decision reference points which are subject to modification or revision over the term of the planning process as the planning group "zeros-in" on task completion. The entire planning process is seen as a flow of events nesting within a series of interdependent feedback loops.

Figure 1

DIMENSIONS OF PLANNING MODEL



In Figure 2 we find the three distinctive phases which overlay the sequence of events. They are as follows:

Phase I Organization for Planning

Phase II Structuring the Task

Phase III Task Completion

These phases are superimposed on the model (Figure 3) with dotted lines. Figure 3 represents an elaboration of the dimensions of the model presented in Figure 1. The model presented in Figure 3 is a linear one nested within feedback loops; that is, the entire planning process is viewed as a flow of events nesting within an interdependent network of feedback loops. Each of the three major phases of the process is viewed as a series of specific events developed from activities which have begun with very broad, general notions and ideas, with each specific event terminating in a set of decisions. The decisions associated with the activity occurring in each event combine over the life of the particular phase in question to comprise a phase termination point (albeit fluid) which may be construed as the signal to commence activities associated with the next phase.

By way of example, we find in Figure 3 that the major events of Phase I, "Organization for Planning," are:

1. Recognition of the Need to Plan;
2. Conceptualization and Establishment of the Planning Mechanism;
3. Formalization of Group Planning Efforts.

The decisions made during each event tend to combine and help to develop a highly specific set of decision points (in this case the identification of planning group members) which serves as the jumping-off place for the next phase, Structuring the Task (what the group is to do). Of course, decision points may be modified within the feedback loop structure as a more definite path is routed by the planners.

The most important phase of the three for the planning manager is the structuring of the task. It is here that the group arrives at some form of consensus as to what the group is to examine, how it is going to go about it, and what the group expects to accomplish.

Then, the planning manager, who may be "new" to all this in the ad hoc setting, needs to have a basic understanding of and a sensitivity to variables of individual and group behaviors as such relate to problem-solving and/or decision-making.

Figure 2

MAJOR PHASES OF PLANNING MODEL

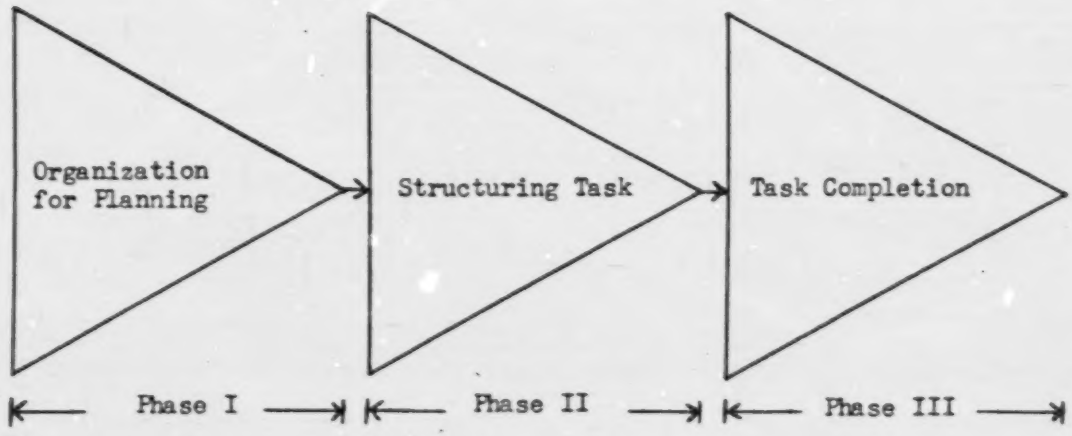


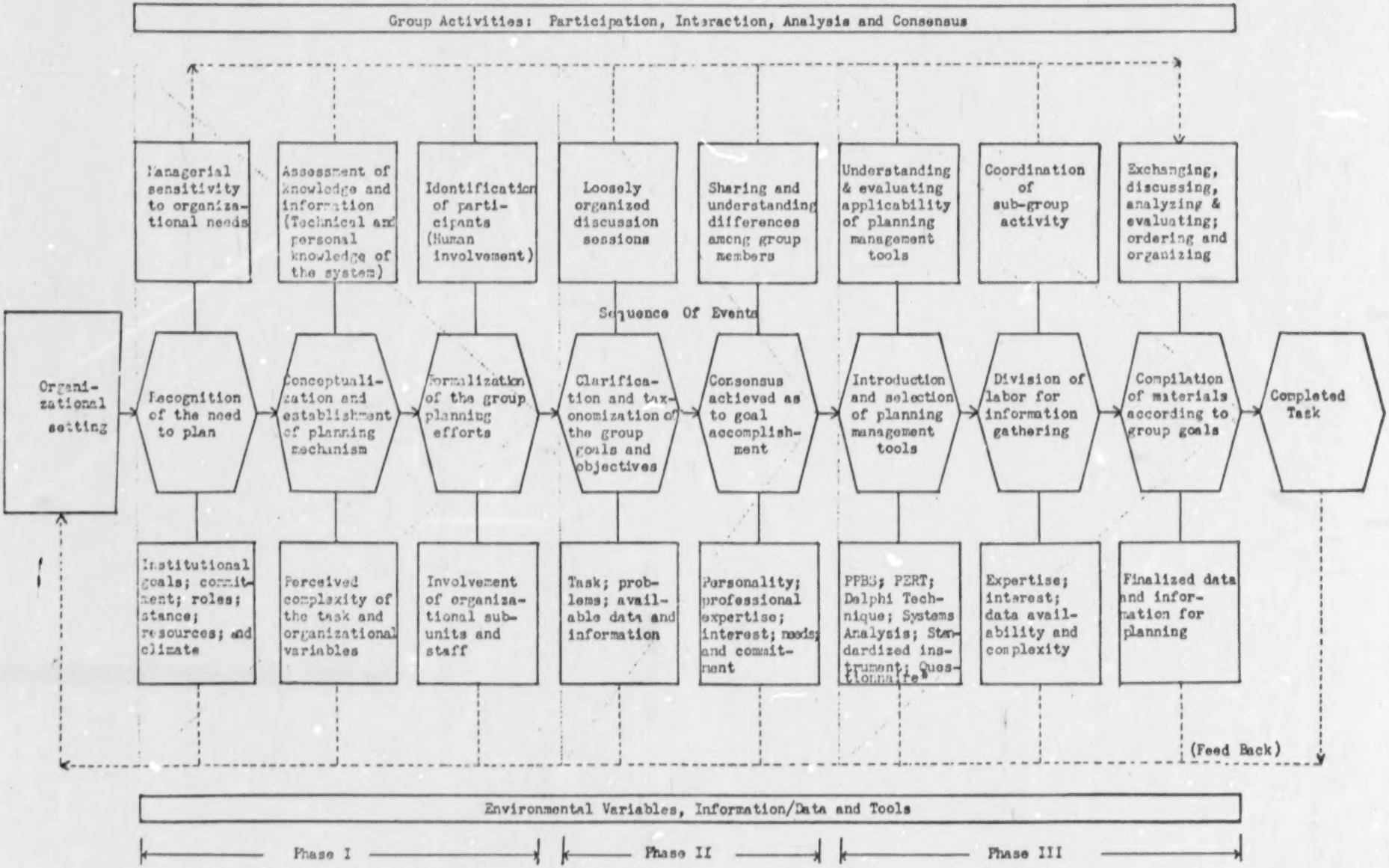
Figure 3, entitled A General Model for Planning Management, diagramatically presents a comprehensive picture of this planning model. It combines three major dimensions (Environmental Variables, Information/Data and Tools; Group Activity; and Sequence of Events) with three major phases of planning processes (Organization for Planning; Structuring Task; and Task Completion). Each dimension within each phase is further elaborated into successively related sub-task components. Certain planning activities dealing with given variables, information/data, tools and techniques at a given stage are to be organized into an event which leads to the next stage.

As shown in Figure 3, significant events included in this general model are as follows:

1. Recognition of the need to plan
2. Conceptualization and establishment of planning mechanism

Figure 3

A GENERAL MODEL FOR PLANNING MANAGEMENT


Group Activities: Participation, Interaction, Analysis and Consensus
Managerial sensitivity to organizational needs
Assessment of knowledge and information (Technical and personal knowledge of the system)
Identification of participants (Human involvement)
Loosely organized discussion sessions
Sharing and understanding differences among group members
Understanding & evaluating applicability of planning management tools
Coordination of sub-group activity
Exchanging, discussing, analyzing & evaluating; ordering and organizing
Sequence Of Events
Organizational setting
Recognition of the need to plan
Conceptualization and establishment of planning mechanism
Formalization of the group planning efforts
Clarification and taxonomization of the group goals and objectives
Consensus achieved as to goal accomplishment
Introduction and selection of planning management tools
Division of labor for information gathering
Compilation of materials according to group goals
Completed Task
Institutional goals; commitment; roles; stance; resources; and climate
Perceived complexity of the task and organizational variables
Involvement of organizational sub-units and staff
Task; problems; available data and information
Personality; professional expertise; interest; needs and commitment
PPBS; PERT; Delphi Technique; Systems Analysis; Standardized instrument; Questionnaire*
Expertise; interest; data availability and complexity
Finalized data and information for planning
(Feed Back)
Environmental Variables, Information/Data and Tools
Phase I
Phase II
Phase III

*Locally prepared data gathering devices including interviewing.

3. Formalization of the group planning effort

4. Clarification and taxonomization of group goals and objectives

5. Consensus achieved as to goal accomplishment

6. Introduction and selection of planning management techniques and tools

7. Division of labor for information gathering, analyzing, and organizing

8. Compilation of materials according to group goals and objectives

9. Completion of the planning task

This model is intended to optimize the potential of contributions from individual planning group members, particularly in an ad hoc setting. Providing such a model for the prospective planning manager has a threefold purpose: it enhances planning efficiency; it facilitates group learning and use of planning techniques; and it provides a realistic and rational approach to the planning task. Needless to emphasize, this model is relatively straight-forward, uncomplicated, and process-oriented, so that individuals can easily acquaint themselves with the planning task.

ORGANIZATION FOR PLANNING

Organizational Need for Planning

Organizational Goals and Functioning

Every organization exists for a purpose, whether that purpose be maintaining a national defense posture, providing health care for the aged, offering instructional services to students, or seeking to maximize profits over time. The major purpose of an organization is, in general, functionally articulated through its goals and objectives. In many instances, goals are regarded synonymously with purposes and are interchangeably used. "Goals" is a more precise expression of organizational purposes with objectives being specific conditions, events, and/or products that are sought as part of or leading to the realization of these goals. Goals of an organization are defined as the collective future state of affairs that the organization attempts to realize.

Given that the organization exists to fulfill its purpose(s), then these purposes and goals, to a lesser extent, should serve as the basic frame of reference for organizational activity. The contribution that any and all of the organizational activities make toward the fulfillment of these purposes and goals should be regarded as the basis (or guidelines) for organizational functioning.

In many organizations, goals are highly defined and have been evaluated, modified, and re-defined many times and in many different ways. Perhaps such action is prompted for the sake of survival or has been undertaken due to several shifts in leadership over time. There are many organizations whose goals are not highly defined. Such organizations might have begun with a particular set of goals. However, time and the flow of events have made the organization shift and change its mission to some extent without a serious attempt to re-define its mission. Hence, what the organization says it purports to do isn't precisely what it is doing. Many times organizational executives are not entirely willing to precisely specify organizational goals. If the target is obscured, it becomes very difficult for sharpshooters to

hit the bullseye; that is, it becomes very difficult to hold individuals or an agency accountable if there are no specified ends against which to apply performance criteria.

The Need for Planning

Goals of an organization serve as evaluation criteria by which members of the organization and outsiders can assess the success of the organization; i.e., its effectiveness and efficiency. Logically and hopefully, the need for planning will emerge from the desire to more adequately and effectively realize organizational goals and to examine future goal possibilities. Planning which deals with goal assessment, therefore, is an essential element for organizational management. Without planning, the organization only drifts and gradually becomes fragmentized.

Planning is directed toward purposes and goals which usually serve as guidelines for organizational activities. Adequate planning is felt, internally and externally, to be an elusive enterprise in many organizations. It tends to be treated as a luxury, and is said to be much desired if only financial resources and time were available. Planning, however, will enable the manager to enhance the level of organizational effectiveness and efficiency by making better use of time and other scarce resources in the realization of goals and objectives.

The need for planning may arise due to some emergency or crisis, or series of crises. Leaders may feel the need to plan as organizational stagnation and decay take place and new directions are sought. Planning may be a latent attempt to carefully evaluate the present conditions of organizational goal achievement. The need for planning may be felt most at the executive and/or managerial level, and to a much lesser extent, at the basic operational level, or at any and all points between. The need may be felt among all organization constituencies to a varying degree.

Conceptualization and Establishment of Planning Mechanism

The commitment to planning, regardless of level, both grows out of and implies a "taking stock" on the part of the executive. This assessment or

"stock-taking"* usually includes the following:

1. Does this institution have clearly defined goals and objectives? What are they? Are they attainable? How are they stated (stated goals)? How are they understood by various constituencies? How are they being realized (real goals)? How comprehensive are they? How ambiguous are they?
2. Given the goals and objectives, what resources are currently available and are likely to be available for achieving these ends? How have fiscal and human resources been allocated? Where are our strengths and weaknesses?
3. What are some of the means that we use (programs, budget and implementations) in attempting to reach our goals? Are they adequate? Can we even determine if they are adequate? How do we measure our successes and failures? How well do we seem to be fulfilling our goals and objectives?
4. What is the stance and posture of the organization? Is it innovative and aggressive, staid and conservative, or somewhere in-between? Is there an identifiable organizational "climate" or environment? Is there an organizational mentality? Is there a feeling of organizational cohesiveness?
5. How is the institution or organization managed? Are there controls, directions, and goals; or aimlessness, ambiguity, and conflict?

Depending upon the intent of the planning effort, its scope, the personalities and technicalities involved, the importance given to planning (presently and historically), and the urgency of the need for planning, as well as a host of other conditions, we find that a planning task may be generally conducted formally or informally. Informal planning usually may involve a few individuals who examine

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*See the section of "Division of Labor for Information Gathering" for further specific categories.

a particular aspect of the organization's programs and activities; and based upon certain data, information, and/or feelings, decisions are made either to alter or maintain a particular program. Formal planning efforts, on the other hand, are usually more comprehensive in nature, involve many people and much time, and deal with broad areas of organizational endeavor. The present discussion serves to focus on formal planning as an activity in an ad hoc setting.

As mentioned earlier, planning may be an expression of the organization's need to evaluate current activities and to delineate a future desired state of affairs which the organization may attempt to realize. Assessment and evaluation play vital roles in the planning process. It will be necessary for the individual or individuals initiating the planning effort to carefully and clearly articulate the intent of the planning effort and its underlying rationale. Planning requires an initial outlay of resources with time* being perhaps the most crucial and most expensive. In order to insure maximum commitment of time, energy, and other resources, the need for planning must be articulated in a way that will reflect known organizational purposes and goals in light of future outlook, environmental conditions, and the organizational climate.

Planning, like most other organizational activities, requires management. There should be a design for planning as well as some attempt to establish criteria for the evaluation of the planning effort. To gather a group of individuals together for the purpose of planning should, by itself, be the result of a planned set of activities and events.

The manager or executive can help to assure that the planning effort will be worthwhile by giving careful consideration as to how the planning effort may be initially organized. The manager should have a reasonably good understanding of the knowledge base that is available or that could be made available to planners; he should be aware of the kinds and types of personal, organizational, and environmental variables with which the planners may deal; and he should have some perception

*See the section of PERT (Program Evaluation and Review Technique).

of and perspective on the complexity of the task.

This conceptualization of the planning effort is essential if a series of activities is to be managed. If the organization is prepared to allocate and expend considerable amounts of resources on the planning effort, then sound management practice dictates that task structuring and control be exercised in the establishment of the planning effort. The effective manager must be able to articulate clearly the need for planning, the organization's commitment to planning, and some expression of sensitivity to the task of the planners as well as the expected outcomes of the planning function.

Form follows function. The planning mechanism, embodied in a group of individuals who will be assigned the task, can be organized once the manager has established, for himself, the general parameters of the overall task.

Formalization of Group Planning Efforts

Members Within the Organization

Any planning activity faces certain constraints among different constituencies. One of the most important factors in planning is that these constraints must be identified, elaborated, and understood through frank and open discussions, because planning itself is a continuum of human interactions. One common constraint is that people in many organizations are not formally trained for planning. Skills and knowledge are usually acquired through personal involvement in planning experiences over time. Consequently, a group of people drawn from members within the organization probably cannot plan adequately unless they are instructed, directed, and coordinated by the planning manager with the aid of tools, procedures, techniques, data, and information. The effectiveness of the planning effort would be largely dependent upon a good human organization, with specific skills and knowledge, adequate data and information, and effective planning management. One of the key functions of planning management is to organize human beings into a functioning group.

Factors in Effective Group Planning

Perhaps planning can be more simply defined as the process by which an organization (or sub-unit of organization) is examined, the organizational purposes and goals are

refined, and the means are specified for reaching set forth goals. However, if we want to do a planning job intelligently and systematically on the basis of a measure of general consensus among constituencies affected, the prerequisites are ideas, technical knowledge, and information about means. It is quite conceivable that if we involve more people (various constituencies) in the planning in order to have them constructively contribute their ideas, knowledge, and information to the process, then the possibility of obtaining useful contributions will be greater.

In recent years, planning methodology has become a specialized and technically refined field, along with operations research, systems analysis, planning-programming-budgeting-system, delphi technique, program evaluation and review technique, computer simulation models, and a host of other management techniques. Obviously, planning does require the resourcefulness of more than one man, since the task usually is too complex for one man.

The manager (or administrator) becomes the moderator, or central figure, by the position status he has. He should be able to cajole, guide, manipulate, soothe hurt feelings, and, at times, play advocate for rejectors and agitators. He must be able to focus the group's attention on the problems. He should act in a dual capacity--one as the group leader and the other as one of the group members. The manager (in fact, he is the moderator) should be influential over the entire continuum of the planning process.

Now the manager must elaborate and select human as well as organizational variables and arrive at a possible optimum combination of variables of two dimensions--human and organizational. The manager should consider factors which collectively optimize contributions to the group planning efforts. He should keep in mind that the organized group should: (1) be composed of individuals having high motivation, interest, diverse ability, skills, knowledge, ideas, opinions, perspectives, and personal profiles; (2) be potentially cohesive; (3) be friendly and cooperative; (4) have potential for diversified leadership; (5) have mixed sexes; (6) have high status members in the organization; (7) be adjustable to changes; (8) have people who would be satisfied by being involved; and (9) have individuals who are willing

to learn skills and knowledge to be used for future planning activities.

Identification of Participants

The manager has to identify individuals within the organization's various segments who ideally represent the organization's population and possess elements as cited above. A matrix may be used in order to optimumly display and combine many of the elements the individuals will bring into the group. A fabrication of this input matrix is shown in Figure 4.

Organizing the Group

A group must be so organized that the members involved in the planning group can concentrate on developing their planning skills and creating a climate conducive to an intensive study of and solution to the organization's planning problems. They should, in some way, be provided with skilled guidance throughout the planning process so that every member can contribute something to the planning task and acquire skills in and knowledge of the planning process.

The title of this paper refers to "Ad Hoc Planning Management." The concept of "Ad Hoc Planning" here means more than a temporary type of management by objectives. This model is to achieve scientific outcomes through individual, personal involvement in planning. Then, there are two major questions to be resolved as to how planning processes can be developed and managed and how individuals should be involved in the group activities.

Now, the manager must consider the variables related to small group dynamics, individual personalities, professional capabilities, expertise, interests, commitments, communication, and so forth. In order to make the planning process vital so that the best ideas, knowledge, information, thinking, analysis, and other contributions can be drawn from those in the planning group, efforts in the selection of members must be guided in light of the process of planning rather than on the plan as an end-product. A key factor for success of planning is the constructive relationships among the planning members who will be involved, hopefully, in an atmosphere

Figure 4

A MATRIX FOR BEST COMBINATION OF HUMAN VARIABLES
NECESSARY FOR GROUP PLANNING EFFORTS

Human Variables / Organization's Sub-units and Individuals	Skills and Knowledge	Motivation and Interest	Leadership	Sociability	Commitment	Responsibility	Cooperation	Adjustment	Individual's Needs	Status	Satisfaction	Learning	Male	Female	Other
				(AN EXAMPLE)											
I. Major Departments															
A. Management/Operation															
Individual a	X	X		X	X		X		X	X		X	X		
Individual b		X	X	X		X	X				X	X	X		
Individual c			X		X			X	X	X		X		X	
.															
.															
.															
B. Program Planning															
Individual d															
.															
.															
C. Personnel															
Individual e															
.															
.															
D. Finance															
Individual f															
.															
.															
E. Facilities, Space, and Equipment															
Individual g															
.															
.															
F. Research and Development															
Individual h															
.															
.															
II. Other Formal Organization within System															
A. Organization X															
Individual i															
.															
.															
.															
B. Organization Y															
Individual j															
.															
.															
.															
III. Others (as necessary)															

of mutual understanding and trust. The planning process requires the consideration of many, many variables and balanced reasoning among its members. Participants should bring such personal attributes that the composite group is heterogeneous in abilities, skills, knowledge, opinions, and perspectives.

The number of persons in the planning group can vary from eight to about twelve, excluding the manager. Probably any fewer number of participants would be too few to handle the amount of work that must be carried out. Any comprehensive planning could theoretically involve almost everybody within and without the organization who would be affected by the implementation of the plan. But the planning group in this paper roughly resembles a steering committee focusing on certain tasks. Each member of the group is certainly required to devote substantial time and effort to the planning activity in order to accomplish the goals of planning. The matrix previously illustrated should be used as a guideline for balancing various elements to be organized into a group effort.

STRUCTURING THE TASK

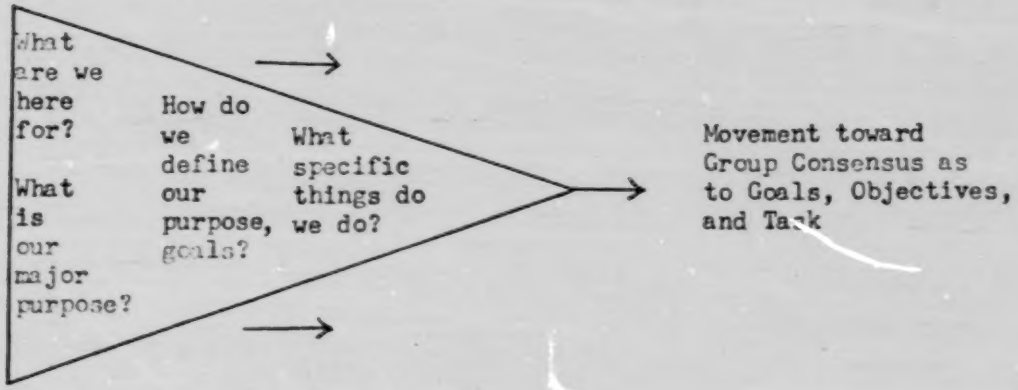
Familiarization and Clarification of Group Goals and Objectives

The first general phase of the planning process heretofore described dealt with organizing for planning. This aspect of the process proceeded from general perceptions of need to specific behaviors related to establishment of a planning mechanism. The second general phase dealing with task structuring proceeds along these same lines; that is, from a general orientation to a specific set of expected behaviors. Essentially, what takes place is the beginning of interactions of planning group members, which then leads to a "zeroing-in" on the planning task. The task takes on dimensions and structure, the group defines and re-defines its goals and objectives, and finally, group consensus is achieved with regard to expected task achievement.

Given that a group for planning has been identified and approached with regard to the task at hand, there will be many questions in the minds of individuals invited to participate. Questions may arise, such as: what are we to do; what do we really know about the organization, its present goals and objectives; how well is it achieving them; how do we define our purpose; what information and data are available; how do we get them, analyze them, and use them; and what specific things are we to do? Perhaps the best way in which to demonstrate the array of questions present in this environment is to use the triangle of Phase II (Figure 2) to depict how these questions help to shape activity.

Figure 5

PHASE II: STRUCTURING THE TASK


What are we here for?
What is our major purpose?
How do we define our purpose, goals?
What specific things do we do?
Movement toward Group Consensus as to Goals, Objectives, and Task

The planning group strives to define fully its mission and then the task. Consensus, as to task fulfillment, goals, and objectives, is the end-point in this phase, although this consensus view can be modified over time as more information is utilized.

The planning group must be provided with a certain basic set of assumptions regarding the task, available information and data, and the assurance that executives will cooperate with and assist the planning group in the retrieval of pertinent information. Through the process of communication and other types of interaction, the planning group, which is represented by different personalities, different degrees of professional expertise, interests, needs, and commitments, will attempt to arrive at a modus operandi for task completion.

After the planning group has been given recognition through organizational mechanisms, that group will need to commence formal discussions persuant to the planning task. From the point when the planning group first convenes to the point in time when the group reaches consensus with regard to what the group is to achieve (produce) and how it is to go about it, is perhaps the most trying period for the individual charged with the responsibility for task completion. If the planning process and activity are to derive meaning from the participation of group members, then it is the task of the planning manager to facilitate participation.

There are several types of behaviors, conditions, and effects that can be identified with group activity and products. The planning manager needs to have both an understanding of and a sensitivity to these variables if he is to be effective in guiding the group. The phase of group activity which serves to define the very objectives and limits of the task facing the group is perhaps the most crucial phase of the planning process. It is here that assumptions are made and definitions of group goals and objectives are refined.

A Mode of Group Discussion

If a plan developed through group effort is to be used effectively by the executive as a guide to improve an organization, it must be comprehensive enough to embrace all the important components, and specific enough to provide practical

guidelines for each component. A comprehensive plan should precede specific plans, so that organizational philosophy and commitment will not be a function of specific plans, such as building plans. This is an important distinction to make.

The magnitude of the task is dependent upon the extent of desired comprehensiveness. It usually would be wise to begin with a general discussion; for instance, the philosophy of the organization and general goals might be a relevant discussion.

The manager (moderator) may facilitate group discussions on underlying philosophy of the organization through loosely organized (highly decentralized) sessions. This is particularly important when the task is viewed as highly complex by its members (M.E. Shaw, 1954a). He should so organize the session that group members can relax, yet he must emphasize and reinforce important statements of the group members in order to develop a cohesive atmosphere (Back, 1951; French, 1941; Lott & Lott, 1961) as well as one conducive to intensive study.

If the planning manager is to guide group planning activity and have some sense of direction for his own action as moderator or leader, then he or she needs to have at least a basic understanding of and familiarity with the following variables as they relate to group activity within the framework of goal-oriented (problem-solving) behavior:

1. cohesiveness
2. communication
3. conformity
4. group goals
5. homogeneity/heterogeneity
6. leadership behaviors
7. task dimensions
8. risky shift

It must be recalled that the commitment to plan involves a commitment to allocate resources. As the planning manager is better able to understand group dynamics, he is better equipped to evaluate group products and is in a better position to evaluate overall performance. As the ability to assess and evaluate is sharpened, it becomes logical to assume that resources afforded to planning are more cost-effective.

Cohesiveness has to do with the intensity and extent to which individuals desire to remain as an integrated part of the group. Research has shown that members of

high-cohesive groups are more satisfied with the group and its products and are more motivated to interact with group members as well as to achieve group goals (Gross, 1954; Marquis, et al., 1951; and Exline, 1957). In addition, it has been demonstrated that high-cohesive groups are more effective in goal-achievement (Shaw and Shaw, 1962). The research has also indicated that members of high-cohesive groups communicate with each other to a greater extent than members of low-cohesive groups and that pattern and content of interaction are more positively oriented.

The manager should pay special attention to the development of homogeneous planning goals by the group, if efficient group performance is one of the desired outcomes of the group effort (Blau, 1954; M. Deutsch, 1949b; M.E. Shaw, 1958a). This cannot be overlooked, because when the goals of a group are homogeneous, members tend to be more cooperative. When the group accepts homogeneous group goals, it becomes more cohesive, and, in turn, the high cohesive group is more effective in achieving its goals than the low-cohesive groups (Goodacre, 1951; Shaw and Shaw, 1962; VanZelst, 1952a; VanZelst, 1952b).

Members with high motivation contribute to the achievement of high-cohesiveness. They generally are motivated to interact with others in the group and to achieve group goals. This motivation leads to effective group functioning and to high member satisfaction (Gross, 1954; Marquis, et al., 1951; VanZelst, 1952b).

In general, heterogeneous groups perform more effectively than groups that are homogeneous. It appears that when group members have a variety of skills, opinions, perspectives, and abilities, there is a greater probability that the group, as an entity, will contain characteristics necessary for efficient group performance. It has been demonstrated that diversity enhances group performance (Laughlin, et al., 1969). At discussion sessions, the manager must be more alert to the pooling of diverse ideas and information than the narrowing down of similar ones.

The reader must exercise some care in distinguishing between the need to develop homogeneous group goals while, at the same time, recognizing the need to provide

and foster an atmosphere or setting whereby the richness of response and contribution emerging from the dialogue of heterogeneous personalities is demonstrated.

Nature of the Problem/Group Mission

In terms of initial group discussion, all problems with respect to the organization's operations and aspirations must be articulated. What are the strengths and weaknesses of the organization? What are the organizational as well as environmental constraints and their effects on goal achievement? How serious are the gaps between current goal achievement and aspired levels of goal achievement? These questions must be delineated categorically, and a problem taxonomy must be developed. This process develops the planning basis. Problem analysis includes the organization's mission, policies, resources, operations, mentality, aspirations, environment, competition, weaknesses, strengths, and the like.

Recall that the main thrust of this phase of the planning process is the clarification and delineation of what is to be done and how the group is to go about doing it. In other words, the task becomes clearly identified and articulated in terms of group behaviors and expected outcomes.

Task

The planning task is the thing that must be done in order for the group to achieve its goals or subgoals. It is rather unlikely that group members would attempt a group task if they had no goal. Either a subgoal or the ultimate goal for group members may be task completion. To the extent that task completion will move the group toward its goal, the group members will be motivated to work toward task completion. The manager should attempt to draw discussion from the group members in order to converge on the definition of the task. The manager needs to work ceaselessly to eliminate ambiguity from the scene; for it has been found that the more ambiguity that is present in a task environment, the greater will be conformity behavior (Sherif and Sherif, 1956). With a group attempting to define its mission and purpose for the benefit of outlining activity, conformity as to purpose

in the final stages of discussion is, of course, desired. But, in the formative stages of the planning effort, a highly differentiated array of opinion and ideas is most desirable. At this point, it may be advantageous to discuss in greater detail the role of leadership in relation to group interaction.

Leadership

Leadership, on the part of an individual, is said to be that behavior which serves as a positive influence on the group or that behavior which embodies and promotes the norms and goals of the group. Leadership is perhaps defined in terms of leadership behaviors. That is, specific kinds of behaviors are defined and labeled "leadership behaviors" by the researcher or observer. The group member that demonstrates these behaviors to a greater degree than other members is said to be the group leader, as operationally defined.

In a classic study, Stogdill (1948) found that leaders exceeded average group members in such abilities as intelligence and verbal facility. It was also found that leaders exceeded other group members with respect to motivational (initiative and persistence) and social (dependability, cooperation, and participation) factors.

With regard to style and type of leadership, it has been found that non-authoritarian-led groups had higher ratings of satisfaction than authoritarian-led groups. On the other hand, authoritarian-led groups required less time to solve a problem and made fewer errors (M.E. Shaw, 1955). Research has shown that it is not easy to evaluate leadership behavior.

Available research indicates that perhaps the most effective type of leadership for planning activities (at least in their beginning stages) is that of a directive or somewhat authoritarian type. Fiedler (1967) found that when the situation is not favorable for the leader, directive leadership is required. A favorable situation is one in which the task is highly structured. This means that decisions regarding the task can be verified, the goal is obvious to group members, there is a single path to the goal, and there is only one correct solution. As these four conditions become more representative of complexity, the task becomes less structured and more unfavorable.

The task of planning with many unknowns, in most cases presents a great degree of complexity; hence, unfavorableness to the leader. He must take a somewhat directive posture to initiate structure.

Emergent leadership behavior can be said to be a function of perceived task difficulty. The planning manager must be aware of this likelihood. The work of Maier (1950) and Shaw & Blum (1965) indicates that group performance is best facilitated by group leaders who provide an atmosphere in which group members can freely communicate their feelings of satisfaction or dissatisfaction with the group's progress toward goal achievement.

Formulation of Group Goals/Tasks

Many notions and theories have been put forth as to the goals of the group--how they are defined, refined, and articulated. The group's goal for planning, or desired aim or purpose, is probably best regarded as some organized composite of individual goals, since group interaction and group structure are a function of individual personalities.

Although agreement on a single goal to the exclusion of all other goals is extremely rare, a group goal for planning is an end state or documented product for future plans which are normally well-articulated by group members.

The research has shown (Horowitz, 1954) that many of the motivational concepts that apply to individuals working toward their own goals also apply to individuals working toward group goals. This is consistent with the idea that group goals are developed out of individual goals. As stated earlier, members' motivational levels must be carefully taken into account before the planning group is formally organized.

While the goal of the planning group represents the desired outcome or documentation of planning products, the task represents what must be done in order to reach or achieve the goal. Depending upon the complexity and the intricacy of the task, there may be many sub-tasks which, when completed, will result in completion of the overall task. Of course, task complexity and the like are related to the group goal(s) with attendant comprehensiveness and importance of same.

Planning activities are quite complex and can be said to distribute themselves into all three categories as provided by Hackman and Jones as reported by Shaw (1971):

a. production tasks - the planning group produces certain ideas and develops them into integrated units;

b. discussion tasks - planning group members attempt to resolve significant issues and summarize their views; and

c. problem-solving tasks - the planning group may establish and promulgate procedural implementation.

Perhaps a more meaningful way to examine planning tasks would be to use the dimensional approach established by Shaw (1971). Using factor analytic methods with over one hundred task variables, Shaw found three dimensions on which a task may be arrayed. These three dimensions or factors are:

a. difficulty - the amount of effort required to complete the task;

b. solution multiplicity - the degree to which there is more than one solution to the task; and

c. cooperation requirements - the degree to which integrated action of group members is required to complete the task.

This dimensional analysis of tasks appears to be one that clearly describes tasks normally dealt with in a planning environment.

In relating the available research findings to the three dimensions above, the following is found with regard to task <u>difficulty</u>: the quality of group performance, as measured by time and errors, decreases with increasing task difficulty (Shaw and Blum, 1965), and there is a decrease in reaction time as well (Zajonc and Taylor, 1963). Bass, et al. (1958) found that when the task is difficult, group members elicit more leadership behaviors than when the task is easier. Finally, with regard to task difficulty, Lanzetta and Roby (1957) found that the quality of group performance decreases with increasing task demands.

With regard to <u>solution multiplicity</u> (clarity of goal-path, too), available

research indicates that a more directive form of leadership is required as solution multiplicity is heightened (Shaw & Blum, 1966). Goal-path clarity has been found to be positively related to motivational characteristics and efficiency of group members (Raven & Rietsema, 1957).

The need for cooperation among group members has been documented in several cases. It has been found that groups in cooperative situations perform more efficiently than groups in competitive situations (M. Deutsch, 1949b). Cooperative situations or settings may be defined to be those in which the goals of the group are homogeneous. Individuals who seek to plan or guide group action (in this case, the planning manager) are well advised to strive to provide a climate of cooperativeness if efficient group performance is desired (Shaw, 1971).

Assessment of Data and Information

After having analyzed all the problems, tentative goals and objectives based on certain assumptions can be developed. In order to attack the problems, certain data and information are needed. Then, an assessment of data and information availability should follow the discussion of the problems.

Each member's expertise and familiarity of data and information relevant to problem solving and achievement of group goals must be emphasized and recognized. Again, loosely organized discussion sessions but intensified (rigorous) analysis would be needed.

Consensus in the Group Environment

Among group members there will be different personalities, levels of professional expertise, interest, needs, and commitment. Because of these differences, group members, individually or as a small sub-group, often may disagree with a proposed decision or action to adopt goals and objectives. Particularly on complex, difficult tasks such as planning, group members may become satisfied or dissatisfied with the group's action. If the manager wants to facilitate group performance, every member should be allowed to freely communicate his feelings of satisfaction or dissatisfaction with the group's progress toward goal accomplishment. Research gives evidence that

when a group member is encouraged to express his disagreement (Maier, 1950) or when he can do so without disrupting the group (Shaw & Blum, 1965), the group's performance is superior.

The manager occasionally is faced with either very favorable or very unfavorable group-task situations. In such cases, he should be well advised to exercise directive leadership for achieving structure and for more effective management of group processes. However, when the situation of arriving at a group consensus as to group goals is moderately favorable, the manager should be less directive (Shaw & Blum, 1966).

Cohesiveness of the group members must be maintained in order to facilitate communication. The manager should keep in mind that high cohesiveness of the group has many positive features such as effectiveness and satisfaction. In order to maintain high group cohesiveness, the manager must reinforce the attractiveness of group members, provide incentives to motivate group members, as well as coordinate efforts of group members.

Consensus and Communication

From the beginning the planning manager will have to closely attend to the flow of communication within the group as communication occurs both within and apart from face-to-face group meetings. Communication networks in small groups aside from pre-determined laboratory arrangements usually can be classified as centralized or decentralized. In the centralized communication network, all information is funneled to one group member who may distribute information to other members. In a decentralized communication network, there is no particular pattern of interaction, but rather an each-to-all exchange of information occurs.

The available research indicates that centralized networks are more effective when the task is simple, whereas decentralized networks are more effective when the task is complex (M.E. Shaw, 1954a). In addition, Leavitt (1951) found that group morale (or satisfaction) was greater in decentralized communication networks than in centralized ones.

In general, centralized networks as compared to decentralized networks are found to enhance the leadership emergence and organizational development, but impede the efficient solution of complex tasks and reduce member satisfaction. The planning manager then needs to have an awareness of these consequences in order to effect a particular communication network balance--one which will be founded upon the trade-offs he is willing to accept in attempting to achieve that balance.

Consensus--Two Cautions

As the group progresses in formulating goals and objectives and works toward a consensus of what the group hopes to achieve and how it is to go about it, the planning manager needs to be aware of two processes which usually come into play as decisions are reached. The two variables in question are "conformity" and a phenomenon that has come to be known as the "risky-shift."

Conformity. In recent years, this variable has taken on a somewhat negative connotation--one that hints that conformity is tied in some way to mediocrity. In the achievement of group consensus, conformity may or may not be a significant issue. However, if group members have a relatively high degree of independence within the group, it seems logical that conformity will have to occur in order for consensus to be reached. Greater conformity occurs in groups with decentralized communications networks than in groups with centralized communications networks (Goldberg, 1955; Shaw, et al., 1957).

It has been found that, in general, the more ambiguity that is present in the problem or task, the greater will be the conformity behavior (Sherif and Sherif, 1956). It would seem then, that a planning task with much ambiguity present in the environment would tend to generate more group conformity than would a simpler task.

Risky-shift. The concept or phenomenon called risky-shift can be of interest to the planning manager. Much research has been done in the area of risky-shift, but the phenomenon is still largely unexplained. In essence, risky-shift pertains to a willingness on the part of a group to make riskier decisions than would be made by individuals working alone. Many experimental studies have demonstrated the existence

of risky-shift.

Ziller (1957) found that decisions made by group-centered decision-making groups were riskier than decisions made by leader-centered groups. Wallach, et al. (1964) also found that decisions made by groups were riskier than pre-discussion decisions made by individual members of the group. Group interaction and achievement of consensus on matters of risk produce a willingness to make riskier decisions than would be made by individuals working alone. Risky-shift effect may be due to the influence of risk-taking individuals. There are two alternative explanations: (1) Since the individual knows that the responsibility for the decision is spread among several others, he may experience feelings of decreased personal responsibility; (2) The influence of the high risk takers could be the cause of the group's shift toward riskier decisions.

Even when the risky-shift is produced by discussions without consensus, group members judge higher risk takers to be more forceful in group discussions than lower risk takers (Wallach, Kogan, and Burt, 1965).

To conclude, it seems that three factors contribute to the risky-shift phenomenon: the influence of the riskiest group member, the cultural value associated with risky things, and the diffusion of responsibility among group members.

In light of the above described phenomenon of risky-shift, the planning manager should be aware of which member is the riskiest person and, further, be cautious about the decisions made as to planning goals and objectives of the group. He should be sensitive to decisions made after group discussions, because decisions derived after group discussion are likely to be riskier than decisions made by the average individual prior to lengthy group discussions.

TASK COMPLETION

Introduction and Selection of Planning Management Techniques and Tools

At this point, the planning group has worked its way through Phase II (Structuring the Task), has sufficiently defined its overall task, hopefully, and is now prepared to commence with the material aspect of planning. This third and last phase is entitled, "Task Completion," although the word "performance" could be substituted for completion. This section of the paper reports on choice and use of selected planning tools and tecnhiques and the division of labor for task performance.

Members' Knowledge about Planning Techniques and Tools

Hostrop (1973) provides a most informative general description of management techniques and tools relevant to planning activities. Knowledge about planning techniques and tools is increasing at a fast rate, and new tools are being developed and adopted from other disciplines such as economics, business administration, space science, military science, and so on. Though such terms as "Delphi Technique," "PERT," "PPBS," "MIS," "Systems Analysis," "MBO," and others are increasingly appearing throughout the literature, many people in many organizations are still at a primitive stage in understanding and applying these techniques and tools. Many quantitative and non-quantitative analytical and forecasting tools are adaptable for planning activities. However, a large number of planning members in an *ad hoc* setting have never heard of any or all of the above mentioned terms. The purpose of this section in planning activities is not only to bring to the attention of planning members effective and efficient planning tools and practices, but to help acquire knowledge of these techniques.

Presentation and Development of a Typology of Planning Techniques and Tools

It is again necessary to open the group discussions in a loosely organized form in order to gather ideas about planning techniques and tools, and to examine their applicability to the particular situations. Presented in Figure 6 is an example of typology of management tools for planning, analysis, and decision-making (Steiner, 1969).

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Figure 6

MANAGEMENT TECHNIQUES AND TOOLS FOR PLANNING

I. NONQUANTITATIVE (Subjective judgement)
- A. Creative mental process: hunches, creativity, experience, judgement, intuition, brain storming, imagination)
- B. Finding the critical factor
  1. Barnard's principle of the limiting factor
  2. Simple decision chains and tables
  3. Asking the right questions
- C. Organization per se (Planning, organization, and budgeting system)
- D. Rule-of-thumb
- E. Policies and procedures
- F. Simple problem-solving steps
- G. General knowledge of the field in which a decision is to be made (law, economics, physics, etc.)

II. GENERAL SYSTEMS METHODS
- A. Problem definition
- B. Nonquantitative simulation model building
  1. Logical-analytical frameworks
  2. Adaptive search
  3. Flow chart
- C. Management Information Systems (MIS)

III. CONVENTIONAL SCHEDULING MODELS
- A. GANNT (bar) charts
- B. Milestone charts
- C. Critical Path Method (CPM)
- D. Line of balance charts

III. QUANTITATIVE (Mathematical-statistical)
- A. Older quantitative method
  1. Trend analysis
  2. Correlational analysis
- B. Newer mathematical techniques
  1. Probability theory
  2. Computer simulation
  3. Linear programming
  4. PERT/Time and PERT/Cost analysis
  5. Heuristic problem-solving
  6. Cost-benefit (effectiveness analysis
  7. Game theory
  8. Subjective probabilities
  9. Statistical probabilities
- C. Complex methods combining several tools
  1. Systems Approach
  2. Delphi Technique
  3. Optimization Research
  4. PPBS
  5. Management-by-objectives
  6. Social science research

Figure 6: Obtained from Casasco, 1970; and Hostrop, 1973

Some may be directly applicable to the task at hand while others are less so, depending upon the scope and conditions of planning.

The first group deals with nonquantitative or subjective tools which are usually based on value judgement, experience, intuition, and imagination. Operational descriptions of these tools are being adopted by many behavioral scientists.

While the second group presents some of the more conventional general systems methods, the third group lists methods of presenting analytical data in visual form. The communication value of these visual tools has certain advantages. A well organized flow chart on a Critical Path Method (CPM) network can help planning managers easily identify terminal points where managerial decisions are required to continue on to the next stage.

The fourth group includes quantitative techniques based on mathematical and statistical methods. For some small planning cases, other kinds of techniques may be more practical. Newer, highly sophisticated (computer-based) mathematical techniques can be expensive and time consuming, thus more suitable for the large and/or complex organization's planning.

Several examples of management techniques which seem to be widely discussed are briefly presented herein. These methods are, at least, conceptually applicable to the planning process. Many planners employ them by slightly modifying them to fit particular planning processes.

Group Learning and Future Staff Development

Perlmutter and de Montmollin (1952) evidenced that group members achieving consensus learned more and faster than individuals alone and individuals in the presence of others. This result provides a plausible interpretation that group members exert an influence on their fellow members, which leads to behavior that would not occur when members are alone. This effect has been proven with group judgment and problem-solving activities. In those cases, group members performed better than individuals. The results of studies of individual versus group learning are remarkably consistent in proving that groups learn more and faster than individuals, both in natural situations (Barton, 1926) and in laboratory situations

(Beaty & Shaw, 1965; Purlmutter and de Montmollin, 1952; Yuker, 1955).

In a planning process where the task is complex, the group learning process can produce highly effective results. Management techniques applicable to organizational planning are so foreign to many planning members who are selected from within the organization, that through the group learning process, new knowledge of and new skills in some of the management techniques and tools can be better acquired.

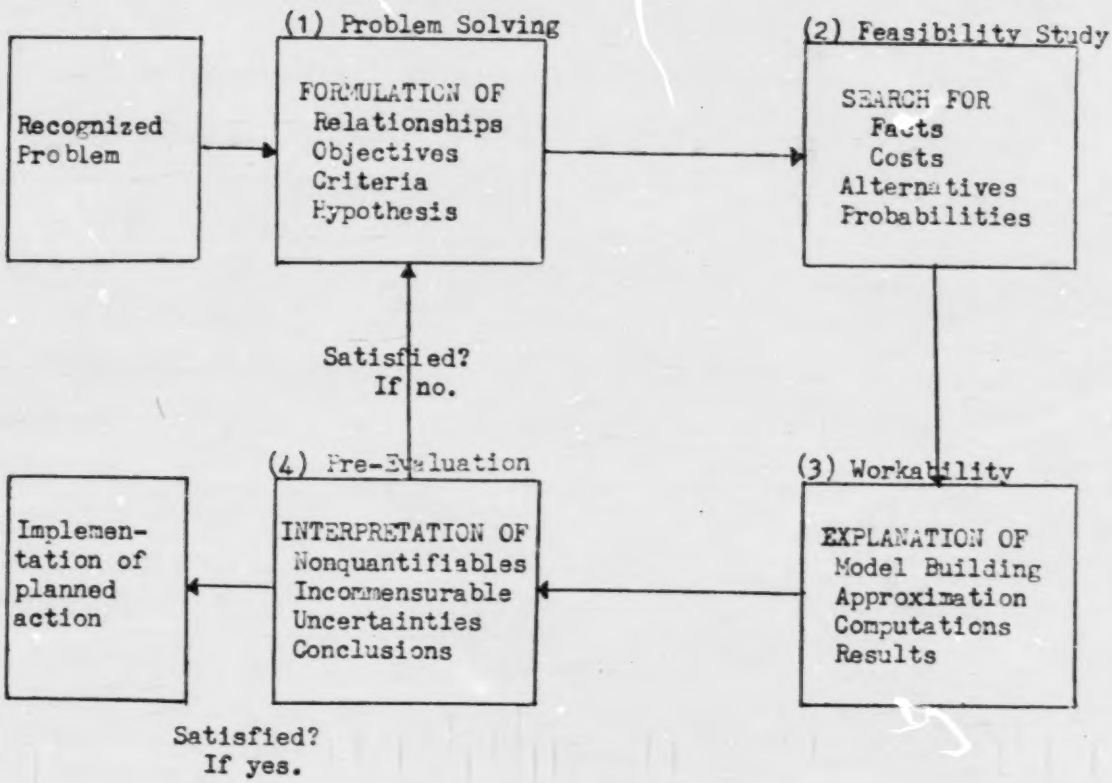
Selected Management Techniques

Systems Approach. This technique is a rational procedure for designing a system for attaining specific objectives. The methodology includes specification of objectives in measurable terms; restatement of the objectives in terms of capabilities and constraints; development of possible approaches; selection of appropriate approaches as a result of trade-off study; integration of approaches into an integrated system; evaluation of the effectiveness of the system in attaining objectives.

In other words, systems analysis is an approach which seeks optimal solutions within the overall perception of executive-level problems in organizations (Black, 1968). Figure 7 depicts the basic four-stage process of systems analysis. Any organization exists to fulfill its goals and objectives. These are, in a sense, organizational needs. To meet this need, it generally requires the employment of a systems approach. This is an orderly and rational approach for scientific problem solving. This is a structured process by which all the variables related to the problem are to be studied.

Figure 7

SYSTEMS APPROACH FLOW CHART



Planning-Programming-Budgeting-System (PPBS). This technique is a relatively new development, and like systems analysis, was developed at the Department of Defense under Robert McNamara in the early 1960's. PPBS provides a method for determining the "cost" of achieving program goals and objectives. Thus, PPBS assists managers in deciding among alternative ways of allocating resources to attain set-forth organizational goals and objectives. The main innovation included in PPBS is that the budget process is heavily emphasized and oriented toward planning rather than administration. The major characteristics of PPBS are well depicted in Figure 8.

PPBS includes a number of other previously developed approaches and techniques (systems studies, long-range planning, formal decision analysis) and combines them into a single comprehensive system. When PPBS is adopted as a planning technique, budget decisions are influenced by specific objectives and the cost-effectiveness

Figure 7: The process of systems analysis--Data obtained from Quade, 1963. For further information, see Quade, 1966.

analysis of each alternative.

The overall strategies generally included in PPBS are the following ten steps (Hitt, 1973):

(1) Formulate the ultimate goals and objectives of the organization.

This is the primary mission, ultimate goals and objectives of the organization (system). This is the ultimate "why" and "what" of the organization.

(2) Assess system-wide needs.

This is the difference between "what is" and "what should be" in programs, special services, staff, facilities, equipment, materials, and all other things required to accomplish the organization's ultimate goals and objectives.

(3) Estimate resources.

This includes financial, human, facility, and material resources that can contribute to the accomplishment of predetermined objectives.

(4) Develop system-wide objectives.

This refers to the broad statements of purposes of the organization as a whole. These objectives are derived from the ultimate goals and objectives, the results of the need assessment and the estimated available resources.

(5) Develop program structure.

This is a hierarchical classification of programs which encompass all activities, and should be designed for achieving objectives of programs and ultimately goals of the organization.

(6) Perform program analysis.

This component includes several important steps: (a) developing specific program objectives, (b) identifying program constraints and their possible effects, (c) developing alternative approaches to accomplish objectives, and (d) evaluating the alternative approaches in terms of estimated cost-effectiveness measures.

(7) Develop program budget.

The program budget is developed on the basis of program structure and the results of the program analysis. "Top Down" inputs to budget formulation constitute a rational input based on system-wide objectives. The "Bottom Up" approach uses cost estimates from program analyses as the basis for the initial program budget.

(8) Allocate resources.

Allocating resources is based on the estimated revenue and budget requirements. Step 8 and 7 must be balanced. Steps 5, 6, 7, and 8, can be recycled as needed.

(9) Operate the system.

Operation of the system must be guided by the results of the preceding steps of planning, programming, and budgeting.

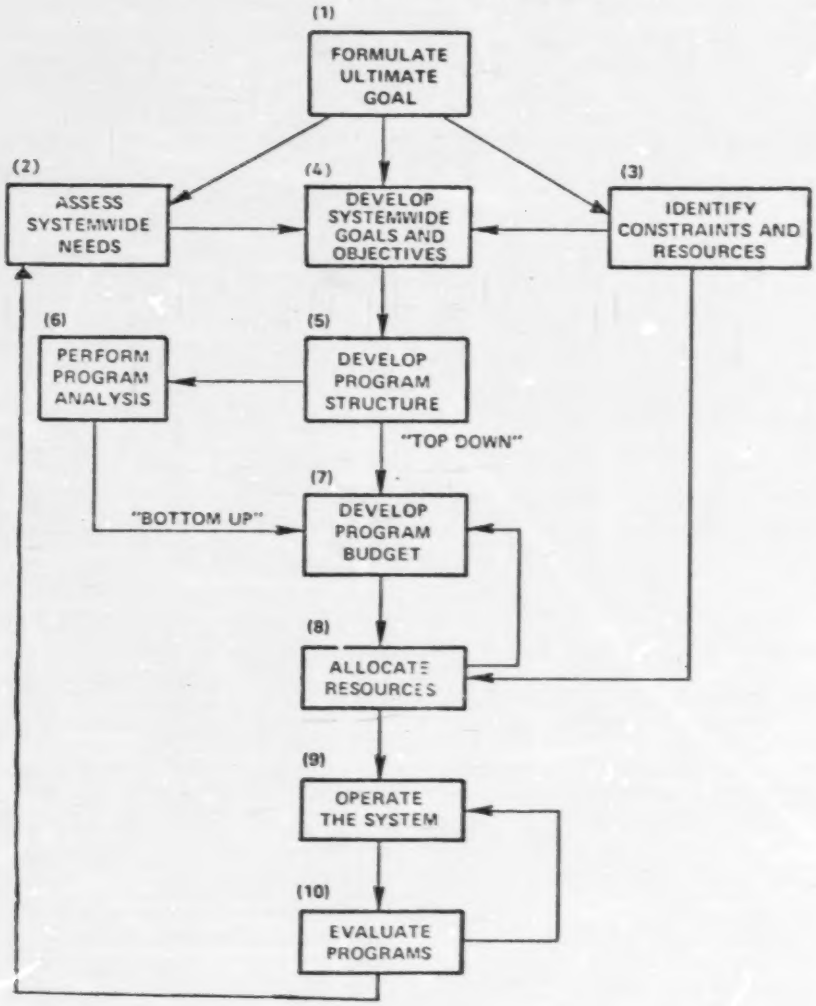
(10) Evaluate programs.

All programs in the organization must be evaluated on a continuing basis. Evaluation should be made in terms of: (1) Did the program accomplish the stated program objectives? (2) Was the program cost consistent with budgeted expenditures?

This is a dynamic-cyclic process beginning with planning and moving toward evaluation.

Figure 8

IMPLEMENTATION STEPS FOR PPBS



Delphi Technique. The Delphi Technique is a management tool developed by a research group headed by Olaf Helmer of the Rand Corporation in the early 1950's whereby a consensus can be derived from group opinions without any face-to-face contact among its members (Gorden, 1969; Helmer, 1966). This method employs a series of successive questionnaires, rather than a series of group meetings in assessing group opinions. The method consists of a set of procedures for eliciting the opinion of a group of people (usually experts) in such a way as to reduce the amount of dissonance of participants' opinions. A typical process of the Delphi Technique may be summarized as follows (Hostrop, 1973):

Stage 1. Participants are requested to list their opinions on a specific topic in the form of brief written statements to a prestructured questionnaire, such as what the organizational goals are and what they should be, without making participants known. Participants are then asked to evaluate their total listing against some criterion, such as importance, chance of success, etc.

Stage 2. The investigator then edits received opinions to reduce irrelevant predictions, to improve clarity, and to avoid distortions of intent and meaning.

Stage 3. The investigator prepares a questionnaire for the second round based on the synthesis of the first questionnaire responses. Each participant receives the refined list and a summary of responses to the items. If any participant is in the minority, he is asked to revise his opinion or to indicate his reason for keeping the minority opinion.

Stage 4. Responses from the second questionnaire will be digested, re-edited, clarified, refined, and summarized by the investigator, and then fed back to each of the participants. Along with an updated summary of responses and a summary of minority opinions, each participant receives the questionnaire for the third round, which is further refined, and then is asked to scrutinize and revise his first response.

Stage 5. Finally, the investigator receives the last-revised responses which he then summarizes in a final report. This is a "consensus of opinions."

The Institutional Goals Inventory (IGI). IGI was developed recently by researchers of the Educational Testing Service of Princeton, New Jersey. This is a tool to help colleges and universities arrive at constituent group perceptions of existing and desired purposes and goals. A climate of active support and ready participation is imperative to the success of planning efforts. Most critical to

an organization's planning is a consciousness of the goals of the institution among organizational members.

The IGI is intended to help college communities delineate goals and establish priorities among them. This method is based on the concept of the Delphi Technique. It provides a means by which many individuals and constituent groups can contribute their perceptions and opinions about what institutional goals currently are and what institutional goals should be in the future. Summaries of the results of these perceptions and opinions of the institutional goals provide a basis for achieving consensus among individuals and constituencies and a basis for reasoned deliberations toward agreed-upon institutional goals.

This instrument for goals inventory is designed to embrace possible goals of all types of higher education institutions in the United States. The goal statements in the Inventory refer to two parts--"output goals" and "process goals." It is quite possible that any organization or sub-units of a system could make use of IGI type of goal inventory instrument. It is reasonable to suppose that a large organization could supply the resources necessary to develop (or have developed) a similar type of instrument.

Program Evaluation and Review Technique. PERT is another management technique which was pioneered by DuPont engineers during the mid-1950's to deal with situations where completion times were uncertain. This method was developed in connection with the Navy Polaris project (Banghart, 1969; Andrew, 1970). While the Delphi Technique provides planning managers with an achieved consensus on what was, what is, what should be, and what might be, PERT can assist in implementing the goals and objectives. PERT is a probability-finding system which seeks to accomplish goals and objectives in the shortest possible time with minimum cost. This technique is also known as Critical Path Method (CPM). PERT is an efficient technique for new, untried, one-shot, and complex activities. PERT techniques can be applied to almost any project which requires logical planning.

When an activity network has been developed in a logical flow, the time and/or

cost to complete each step needs to be estimated. Three-time estimates, known as "Pessimistic Time," "the Most Likely Time," and "the Optimistic Time," are made. Then, "Expected Elapsed Time" or "Expected Cost" can be computed by using the following formula for each activity and then summed to obtain "Total Expected Elapsed Time" or "Total Expected Cost":

$$t_t = \sum_{i=1}^{N} \left(\frac{O + 4M + P}{6} \right)_i$$

Where t_t is the Total Expected Elapsed Time, O is the Optimistic Time, M the Most Likely Time, and P the Pessimistic Time. The symbol $\sum$ means to sum all scores following the symbols. The notations above and below the summation sign indicate that i takes on the successive values from the first intermediate activity up to the Nth activity.

This technique has further employed a statistical concept of standard deviation which indicates an estimate of variability. The formula to find the standard deviation which indicates the range of time spread here is as follows:

$$SD_{t_e} = \sum_{i=1}^{N} \left(\frac{P - O}{6} \right)_i$$

The obtained value from this formula can be used to estimate the probability of an activity being completed within a range of estimated times employing normal curve concepts.

Figure 9

AN EXAMPLE OF THE USE OF PERT-TIME CHART
(Figures are expressed in number of weeks.)

Events	Pessimistic Time (weeks)	The Most Likely Time (weeks)	Optimistic Time (weeks)	Expected Elapsed Time (weeks)	Standard Deviation (weeks)
Event 1	5	4	2	3.8	0.50
Event 2	7	5	3	5.0	0.67
Event 3	5	3	1	3.0	0.67
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
Event N	8	6	2	5.7	1.00
Total	25	18	8	17.5	2.83

The tools and techniques presented thus far are merely a sample of what is available to the prospective planner. The selections included above are perhaps representative of the most widely disseminated, applied, and holistic of a wide variety of such tools and techniques. There are several publications, most of which have been cited herein, which fully elaborate on the details of these devices and constructs.

Division of Labor for Information Gathering

At this stage of the planning continuum, it is necessary to determine the kinds of data and information that will be essential to validate the present status of the organization and to develop and evaluate possible strategies for the future. To make such complex tasks successful, the data and information should be as comprehensive as possible.

Data and information may include all of the following:

1. Historical data
2. Organizational philosophy and goals--"What Is" and "What Should Be"
3. Determination of needs of individuals associated with the organization
4. Program diagnosis and evaluation
5. The mission, chief function, or responsibility
6. Specific objectives and functions of sub-organizations
7. Identification of current conditions, a desired state of affairs and gaps
8. Identification of continuing goals, expressed in quantitative and/or qualitative terms, for the long-range operation of the organization
9. Clarification of the organization's functions network
10. Development of future assumptions
11. Enumeration of the existing basic policies
12. Determination of political, environmental, and institutional factors which influence the operation of the organization over which no direct controlling is possible
13. A comprehensive list of strengths and their effects
14. A comprehensive list of weaknesses (constraints) and their effects

One member cannot gather this bulky amount of data and information in any reasonable amount of time. It therefore becomes necessary to assign specific data-gathering tasks to planning members and set due dates for compiling the material into an organized form for exchange among planning members. Planning is a time-consuming job, and it is always advisable to develop a timetable. Unless a time-table is set which establishes realistic deadlines for completing the task, and deadlines are strictly adhered to, planning can take an unnecessarily long time and perhaps never produce a satisfactory product. For this reason, the PERT-TIME chart is of great value.

In assigning data-gathering tasks, the planning manager, once again, should consider several factors, such as expertise, interest, commitment, and needs of planning members as well as complexity and availability of data and information. Division of labor may be made as a result of group consensus after having reviewed and enumerated the areas of necessary data and information retrieval. The process of data gathering may be guided by using a check list as given in Figure 10.

Monitoring the group members consistent with a balanced task assignment is needed, but each member should be given an opportunity to delineate his own particular assignment and then select a part of the work.

This is, perhaps, the point at which the planning manager can refer back to the decisions to include particular individuals in the planning group. There were reasons, some obvious and some not so obvious, as to why individual X was asked to participate. The planning manager can, at this point in the process, draw up some tentative plans for a division of labor based upon not only these original decisions for inclusion but also upon the performance of the individuals in the group up to this point in time, upon the commitment expressed, the special skills demonstrated, and other indices. The division of labor, then, does not have to occur as the result of some random event or remarks. It can be manipulated and controlled to some extent, although this aspect of the process falls within the realm of art, not science.

It seems, however, that the research bears out the notion that a division-of-

Figure 10

A CHECKLIST FOR DATA/INFORMATION COLLECTION
AND DIVISION OF LABOR

Necessary Data and Information	Source	Method of Collection	Responsible Member(s)	Availability		
				Enough	Short	None
1. Historical data						
2. Organizational philosophy and goals--"What Is" and "What Should Be"						
3. Determination of needs of individuals associated with the organization						
4. Program diagnosis and evaluation						
5. The mission, chief function or responsibility						
6. Specific objectives and functions of sub-organizations						
7. Identification of current conditions, a desired state of affairs and gaps						
8. Identification of continuing goals expressed in quantitative and/or qualitative terms, for the long-range operation of the organization						
9. Clarification of organization's functions network						
10. Development of the future assumptions						
11. Enumeration of the existing basic policies						
12. A comprehensive list of strengths and their effects						
13. A comprehensive list of weaknesses (constraints) and their effects						

labor will yield more fruitful results if the partitioning is made on the basis of motivational considerations rather than upon skill or performance potential or expectancy. If possible, the planning manager should resolve to attempt some mix of skill and motivation; but if said mix is difficult to conceptualize and identify, then motivation should serve as the basic criterion.

In order to maintain a high level of communication with one another, the planning manager and the group members must always conduct discussion in an atmosphere of openness and trust. Feelings of satisfaction by participating in the planning activities should not be overlooked, but amplified. If group members are cooperatively working toward homogeneous goals, the group will be more highly coordinated. Under a highly coordinated group process, the planning members would be able to organize the group so as not to duplicate one another's efforts (Cartwright and Zander, 1968, p. 475).

Compilation of Materials According to Group Goals

This is the last part of Phase III (Task Completion) of this planning model--the summing-up section. After group members, individually and/or as a sub-group, have collected, analyzed, and organized the data and information necessary for the compilation of planning documents, preliminary materials need to be exchanged among group members for comprehensive discussion. The data and information should be further analyzed and evaluated in light of feasibility, workability, accountability, and importance of the institutional goals.

In analyzing data and information, the planning manager should be alert to reconciling and maintaining homogeneous group goals. Keeping this in mind, the job he should tackle is to induce group members to (1) identify significant internal as well as external trends, (2) delineate significant constraints, (3) define planning gaps--the difference between "where it should be" and "where it is," (4) develop preliminary objectives along with alternatives, (5) refine preliminary objectives and develop categorized and weighted strategic courses of actions, and (6) provide usable criteria for measuring outputs and their effects on the future.

In order to document the enormous amount of data and information produced during the planning sessions, (1) specific, planned activities to be carried out by each sub-unit of the organization must be clearly categorized and given priority, (2) specific timing for implementation needs to be agreed upon and expressed, (3) the extent and format of communication of the planning decisions must be agreed upon, and (4) a planning guide for the future planning must be developed.

Again, the planning manager must be especially alert and be ever watchful with regard to group decisions and the attainment of consensus and such variables as cohesiveness, conformity, and especially the "risky-shift" phenomenon.

If the planning group had adequately defined, in operational terms, (at the termination of Phase II) what it expected to achieve, then the drawing together of individual efforts and sub-group efforts should result in a relatively straightforward pooling, consideration and delineation of recommendations. It is always possible that the group may not readily agree on the directions established, and controversy may arise. Such controversy is healthy, especially if the group is heterogeneous in composition, as long as controversy serves to optimize final decisions. In any event, the planning manager needs to be fully sensitized to detect evidence of consensus by conformity (to avoid personal attack) or perhaps an overly "risky-shift."

CONCLUDING NOTES

Any manager who has a limited knowledge of and skills in long-range planning and lack of prior experience in planning may be convinced of the efficacy of this in-house type of planning process (under the conditions indicated earlier in an *ad hoc* setting), if he closely examines what has been presented here. He may be far less hesitant to initiate serious long-range planning activities. The manager would know why he needs to concentrate on the process of planning rather than the final product of the planning document. By understanding group dynamics he would draw out the best contribution of the planning group members. The in-house planning effort can provide

an excellent in-service training opportunity for those who do not have any prior knowledge or experience in planning, because group learning surpasses individual learning. The manager ultimately could perform as an excellent planning manager as well as develop a greater sensitivity to small group dynamics.

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